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ABSTRACT

In this review and evaluation of a week-long workshop in computer literacy developed for home economics teachers, the following points are raised: (1) There is a need for inservice programs designed to overcome teacher anxiety about computers; (2) Lack of instruction regarding the use of the microcomputer is the most important factor limiting the educational use of computers; (3) Teachers have a low level of confidence in hardware and software; (4) Computer instruction should focus on drill and practice, precise question-answering, review of materials, and achievement testing; and (5) Computers are effective in motivating students. A description is given of the activities designed for the 110 participants (all home economics teachers) in each session of the workshop. Teachers' responses to a post-workshop questionnaire are presented, and their progress in overcoming their fear of computers is discussed. Suggestions are made for developing computer workshops for teachers and also for incorporating computer literacy programs into preservice teacher education programs. (JD)

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AN IN-SERVICE WORKSHOP APPROACH THAT HELPS TEACHERS REDUCE COMPUTER ANXIETY

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We can agree that we are living in the computer age. Advances in microcomputer technology are having and will have an impact on every aspect of education. Computing literacy is no longer expected only of students and teachers in computing fields, but the potential of the microcomputer in the classroom is expanding into all subject areas, including home economics. There is an emphasis on advanced technology, with computers being used in over 50 percent of all secondary and over 20 percent of all elementary schools through the country. For the past decade educators have come to realize that the technology explosion cannot be ignored. Increasing demands are being put on faculty in higher education to meet changing demands of todays workplace and therefore modify the kinds of preparation we give our pre-service and in-service teachers. We must help alleviate teachers fears about using technology by training them to develop competencies.

There is a wide range of what is meant by literacy when applied to the microcomputer. Several states have proposed the addition of a computer literacy competency to their state certification requirements. This proposal would mandate that all teachers must have undergone training within their teacher education program that would provide them with the ability to incorporate the use of computers into the institutional process in the student's field of specialization. Although this is not yet manatory in Kentucky, home economics teachers must retool and incorporate the microcomputer into teaching strategies.

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A survey of Kentucky Home Economics teachers in 1982 revealed that computers were already in the schools but that teachers had no training in using them and desired some assistance in learning more about them. They also identified many stumbling blocks - the greatest of these being anxiety about using them. This fear (anxiety) toward the microcomputer has been referred to by some as "chipophobia". There seems to be an unsettling feeling about sitting in front of a screen touching keys and hoping nothing breaks or that no one jumps out of the screen. Some teachers actually believe it's too difficult and complicated for them to learn about the microcomputer so why bother. If they are tenured teachers they may realize that there will be few if any negative effects on their job situation or salary.

This anxiety seems to be easily relieved as teachers have experiences working with and using the computers. The desire to learn becomes much greater when personal and professional benefits are realized. As they learn to type tests, take inventory, average grades and plan lessons for individual learners on a microcomputer, they become more interested and less anxious about their use. So one aspect of an inservice workshop must be to stimulate and motivate teachers.

In pre-service training we are building in some experiences as a part of classwork. But for the in-service teacher we must rely on workshops or skills update sessions. Technology must be viewed as a useful tool to enrich classes.

Effective in-service programs should meet the needs of the teachers they serve. The needs of West Kentucky Home Economics teachers as they relate to computing literacy were identified by Payne (1982) as a basis for planning

computing literacy in-service workshops. Results of teacher surveys indicated their greatest needs were for: 1) information on using computers in home economics, 2) helping teachers develop more computer awareness, 3) assisting teachers in overcoming computer anxiety, and 4) providing information on various types of computer hardware. In addition teachers requested information on available software for the home economics classroom. In-service workshops were then designed and implemented to address these expressed needs.

A one-day in-service workshop format was used for the first workshop. Sponsored by the Department of Home Economics at Murray State University through a grant from the Kentucky Bureau of Vocational Education, it addressed the topics: 1) scope of computer use throughout the state; 2) features and benefits of various types of microcomputer hardware; 3) use of a classroom computer networking system; and 4) hands-on experiences with prepared computer software. Over 50 Home Economics teachers attended. The day was blocked into 3 sessions with each being repeated and teachers divided into small groups of no more than 20. A beginning address was presented by a high school principal who shared results from his state-wide computer use survey and indicated that administrators were supportive of teacher in-service directed toward computer understanding and use.

Various hardware salespersons were on hand to demonstrate their equipment and answer questions: Apple, TRS-80, Commodore Pet, TI, and Atari. Their available software wasn't in Home Economics, but served as a tool for demonstration purposes at that state in the project development.

Another session featured a team of Home Economics teachers from Northern Illinois who were using the micro-computer in classes and were actively

developing software. Their encouragement and familiarity with subject area helped teachers to see how and where computer applications might be integrated into specific classrooms. Explanation and demonstration of a network system where teachers could send a program down to students presented a different approach to computer-assisted instruction.

The third session featured a hands-on opportunity for teachers to work in pairs and run a prepared disk with several Home Economics-related programs. Teachers' fears of breaking the machine lessened as they gained confidence in interacting with the programs.

Based on an evaluation instrument administered at the close of the first workshop, teachers requested a follow-up workshop to gain additional hands-on experiences in using the microcomputer. The follow-up session focused on ways in which teachers could input some data to be used later by their high school students. During this session, teachers learned how to generate a basic test.

Further feedback from teachers, analysis of evaluations from these workshops, and continued interest in the topic of microcomputers resulted in the development of a more specific survey (Slimmer & Payne, 1983) which was administered to home economics teachers along with an awareness questionnaire (Griswold, 1982) during early 1983.

The purpose of the study was to evaluate the effectiveness of these workshops for providing in-service updates to teachers. The study assesses awareness of home economics teachers by comparing teachers's attitudes toward using microcomputers in classroom teaching before and after in-service workshops.

Of the 110 respondents, 63 (57.3%) had received a master's degree and another 32 (29.1%) had 30 hours above the master's level. Over 47.3% (n=52)

had one to five hours of training on the microcomputer; 17 (15.5%) had more than six hours of training on the microcomputer but 38 (34.5%) had had no training on the microcomputer. Of the 71 that had been provided in-service training sessions on the microcomputer, 35 (31.8%) indicated in-service was provided by their school district; while 23 (20.9%) had received in-service training from Murray State University.

Thirty-five respondents (31.8%) ranked the lack of instruction regarding the use of the microcomputer as the most important factor limiting the educational use of the microcomputer. Lack of instruction on programs and the availability of software were factors that were ranked high by the respondents.

When asked what limited their own use of the microcomputer, 33 (30.0%) identified the level of confidence with hardware and software as the most important limiting factor. Availability of software for their area, level of instruction, and limited time were ranked as the second most important reason by 26 (23.6%) and 21 (19.1%) respectively by the respondents. A lack of money, not one of the items given on the questionnaire, was written in by 17 (15.5%) of the respondents as the most important limiting factor in the use of the microcomputer in the classroom.

Twenty-six (61.0%) of the respondents who used the microcomputer in the classroom ranked the speed of the process as the most important aspect they liked about the microcomputer. Although a question with items of dislikes about the microcomputer was included only minimal response was given. The primary uses of the microcomputer in the classroom were given as classroom management, program development, student assignments and remedial instruction.

Use of the Grinwold Awareness and Perception Questionnaire indicated a strongly agree or agree on the following items: a person today cannot escape

the influence of computers; computers will replace low-skill jobs and create jobs needing specialized training; computers will improve education; computers can teach mathematics; computers can teach reading; computers are a tool much like a hammer or lathe; computers could relieve teachers of routine duties; and computers could take over parts of courses in my subject area.

Following the in-service, a larger percent of the respondents indicated on the post-test that computers can be used successfully with courses which demand creative activities. A t-test analysis of twenty-four paired samples for the differences between the mean scores of items on the Griswold Attitude and Perception Questionnaire was used to determine if significant differences were noted in the participants' responses following the third workshop. A comparison at the 0.05 level showed there was a statistical significant difference with the participant's responses showing an increase in awareness and perception of the microcomputer.

The study shows that in-service does provide secondary teachers with perceptions regarding the usability of the microcomputer in the classroom. If teachers are provided with opportunity to improve and update their skills in areas of expressed needs, they will respond favorably and accept the challenge of providing teaching excellence in their classroom.

A needs assessment from workshop participants and other secondary home economics teachers resulted in the development of a graduate short-course workshop designed to provide development of competencies in computer assisted instruction for Home Economics, including the ability to: 1) read and execute simple programs; 2) use educational software; 3) talk more intelligently about computer terminology; 4) recognize examples of educational problems that can be used on the computer; 5) locate sources of educational computer

information; 6) apply computer instruction in the classroom; and 7) evaluate software and hardware for classroom use.

Teachers responded well to this type of format with over 30 ememtary and secondary teachers from Regions I, II, III and IV participating in a comprehensive one-week course which included not only lecture and discussion but also over 15 clock hours of actual computer use time with two teachers per computer. At the end of the week teachers had developed a better understanding of both roles and uses of microcomputers along with specific home economics applications, available software and sources plus some skill in using it as a classroom tool.

Eleven of those teachers chose to continue with skill development and learned how to design content for a computer program. These content screens were refined and flow charts developed to insure completeness, logical sequence and fluency. These were then given to a programmer who was hired to complete development of software. On the follow-up day in August teachers were pleased to see their work become a reality and their name appear on the screen as author of their software program. Evaluations from this third workshop were again very positive with teachers asking for continuation of these in-service sessions in the future.

What then does this mean to us in teacher education? Educators are being inundated with information from many sources about how microcomputers are the greatest invention for today's classroom. But without adequate teacher orientation and preparation, microcomputers can simply sit on a table, being used only by specific students and then perhaps only as a recreation or privilege. Do we need to pinpoint what teachers need to know about computers?

In less than 5 years three-fourths of the American workforce will have direct access to computers in their workplace. Many will have computers in

homes as well. Teachers must be encouraged to realize that the computer is not a miracle cure. It can't solve problems that aren't defined. It won't heal a poor decision-making system. It won't make subjective decisions. On the other hand, it will not get bored with repetition. It will force teachers and students to work with concrete ideas. It will perform basic functions very quickly. Computer instruction should focus on: drill and practice, precise question-answering, review of materials covered in class, and testing of achievement. Other functions might include recordkeeping and design and generation of teaching materials. These functions would then enable the teacher to be freer to provide individual student support, teach concepts, principles, and provide other applications of the material.

Input from teachers indicates that there are some advantages for students who use microcomputers. Students are motivated, and their concentration is often increased. They like to participate actively in the learning process. Teachers have observed better cooperation among students. Computers can help and speed up student learning by explaining patiently, by providing immediate feedback, and by motivating the student (entertaining). Teachers agree that the more active the student is during the learning process, the faster a student will learn, the longer the learning will last and the more likely it is to be used after the learning episode is over.

Teachers have been interested and encouraged to use the microcomputer because of the effect they see it has on students. Outcomes such as these have been reported by teachers: 1) students come to class with renewed enthusiasm and interest in learning. 2) students can work individually with computer giving feedback. 3) students are willing to share with others their learning. What are some general advantages for teachers? Variety in instruction is a given. The computer is a tool for educators but it must not be presented as in competition with the teacher. A computer can provide materials

very easily and quickly. It can teach concepts, individualize learning, and simulate real-life decision making situations.

There are many arguments for having a computer laboratory in a neutral area, manned by a specialist, but this may not be possible in all systems because of facilities and personnel. On the other hand if it is not easily accessible, some teachers will never have courage to learn to use it and therefore students may also be denied access to its use.

We must continue to be aware of some of the disadvantages or teacher problem areas. These include: 1) lack of teacher training, 2) Disinterest or apathy toward computers/uses, (teachers don't see how to use microcompuer in their own situations or how they would be helpful) and 3) lack of funds for hardware/software.

Some general suggestions to be remembered when developing workshops are: 1) Get to know the individual teachers -- where they are, what they need, what are effective techniques for this approach to learning. 2) Use competent people, preferably in the specific subject area specialization as consultants and workshop leaders. 3) Don't try to do too much too fast - be realistic and sensitive. 4) Teachers are busy - they must see how this new tool can be a help to their situation. Practical applications are a must. 5) Let them experience <u>using</u> computers in the workshop. Support and encourage but let them enjoy!

With these ideas in mind we can develop in service workshops that do indeed help to build on teachers' skills.

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